



Name: _____

Date: _____

Keystone species:

Oysters are Water Clearers- Guided Reading

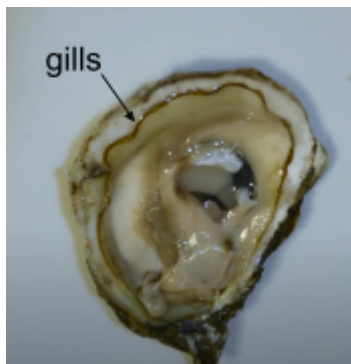
What is a filter?

Have you heard of a “filter” before? Maybe you have a water pitcher with a filter, or have seen an adult use a filter to make coffee or tea! A filter is a tool that removes suspended particles - little things floating around - from liquids like water. Filters don’t actually make those things disappear. Instead, filters clear suspended particles from the water and collect them inside the filter.

What is the function (job) of a filter?

Filter Feeders

Some aquatic animals, like oysters, are **filter feeders**. Oysters open their hard shells, take in water and whatever is floating nearby, and filter out what they can eat by moving the particles over their gills.



When oysters filter feed, filtered water flows out of the oyster through another hole or “siphon”. An adult oyster can clear up to 50 gallons of water per day - that’s like two big containers of milk per hour!

Oysters eat **phytoplankton**, which are tiny type of algae that floats in the water.

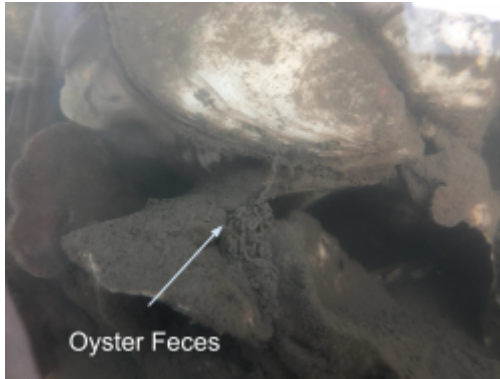


Phytoplankton are microscopic, and come in many different shapes and sizes.

When filter feeders like oysters eat, they clear the water. Clearer water allows more sunlight to reach plants and other photosynthesizers, which helps them grow. Plants

and photosynthesizers are the foundation of the food web. More sunlight helps those organisms to grow and thrive, which helps support the entire food web. For this reason, oysters' ability to clear water is an important ecosystem function.

Sometimes oysters eat and digest what they filter from the water, and get rid of it as **feces** (waste) - just like humans!. Other times, they spit it out before it even enters their



digestive system. This is called **pseudofeces** ("pseudo" means fake, and "feces" means poop). Oysters also filter and absorb minerals from the water, especially nitrogen and calcium, which they use to build their hard shells. Calcium carbonate, the substance oyster shells are made of, is also found in many types of rock! Excess nitrogen in the water can be toxic to some animals, so filtering nitrogen is another important ecosystem function.

What do oysters eat? What happens to substances that they take in but do not eat?

Oysters Clear (not clean!) the Water

Feces and pseudofeces are more dense than seawater, so they sink to the bottom and mix with mud and sediment. These waste materials may contain nitrogen or pollutants that oysters filtered from the water. By moving these harmful particles out of the water and down to the sea floor, oysters help protect the fish and other animals that swim around from eating them. For this reason, clearing the water is an important ecosystem function that oysters offer.



A jar of harbor water with oysters, left, and a jar with only harbor water, right

However, animals like crabs and worms and other organisms that live in the mud may still eat or live near this waste. The pollution is still there, but the oysters' feces and pseudofeces relocate it from the water to the seafloor. So while oysters don't clean the water - because they don't make pollution disappear completely - they do make it clearer.

If oysters live in polluted waters for a long time, they can get sick. Pollution can also make it harder for oysters to grow and reproduce. When oysters filter feed, some pollution from the water is absorbed into their bodies. It's not safe yet to eat oysters that grow in waterways like New York Harbor, because the pollution in their bodies could make people sick, too. Oysters are helpful to keep the water clear, but they are not a magical solution to water pollution.



How do oysters clear the water?

Billion Oyster Project is trying to restore one billion oysters to New York Harbor. It's estimated that one billion oysters could filter the entire harbor in 3 days!

Sum it up

Record 1-2 takeaways from each group's "Oysters are..." readings

<u>Shoreline Protectors</u>	<u>Habitat Builders</u>
<u>A Source of Food</u>	<u>Water Clearers</u>

Photo credits:

American Museum of Natural History. (n.d.). *Phytoplankton* (Ology Card No. 193). AMNH. Retrieved August 4, 2025, from <https://www.amnh.org/explore/ology/ology-cards/193-phytoplankton>

Caref, Eli. *Oyster Feces*.

Rex, Melissa. *Oysters Clear the Water*.

Caref, Eli. *Oyster Eating*.